

## **ABSTRACT**

**Title:** A study comparing the effects of intraoperative administration of systemic/ epidural/ intrathecal morphine on the quality of recovery in patients undergoing substitutional urethroplasty with buccal mucosal graft: a double-blind prospective randomized control study

**BACKGROUND:** Substitution urethroplasty with buccal mucosal graft is a surgery which is done to repair urethral stricture. Both, the buccal mucosa and the perineal area have an immense nerve supply, any surgical procedure done in these areas produces moderate to severe pain in the post-operative period. If this pain is not addressed well, it can significantly impair the quality of recovery.

**OBJECTIVES:** To compare the effect of different modes of analgesic techniques (intravenous, epidural morphine, intrathecal morphine) on the quality of recovery.

**METHODS:**After the IRB approval, a prospective, double-blind randomized controlled study was conducted in all ASA I, II patients, aged between 18-60 years with normal renal functions who were posted for SU with BMG. A total 93 patients were recruited and randomly assigned into three groups Group A—systemic morphine(0.1mg/kg), Group B- Epidural(3mg morphine+5ml of 0.2% Bupivacaine), and Group C-intrathecal (150µg morphine+ 1 ml of 0.5% heavy bupivacaine).

Standard anaesthesia protocol was followed for induction and maintenance. All patients received 0.5 µg/kg of fentanyl bolus for each pain response. An increase in blood pressure and heart rate by 20% from the baseline was considered as pain response. Inj. Paracetamol 20mg/kg as a multimodal analgesic technique and Inj. Dexamethasone(0.1mg/ kg)

and Ondansetron (0.1 mg/kg) was given for prevention of postoperative nausea and vomiting and pruritis. At the end of surgery patients were extubated, CADD pump was connected to deliver morphine IV-PCA and shifted to PACU.

In the ward, the BP, HR, respiratory rate, sedation score, the incidence of PONV, pruritis, pain score at the buccal as well as the urethral site all, were recorded at regular intervals. Time of initiation of oral fluids, time to ambulate, and time of hospital discharge were noted. At 24 hours, the quality of recovery was assessed using the QoR 40 score. The total dose of morphine consumption at 24 hours was also noted.

**RESULTS:** The demographic, co-morbidities and the baseline vital parameters were comparable in all three groups. Intraoperative fentanyl and propofol requirements, fluid administered were similar. The duration of anaesthesia was longer for the epidural group ( $305.5 \pm 75.6$  min) compared to systemic ( $264.5 \pm 72.2$  min) and intrathecal group ( $262.2 \pm 69.4$ ). The median total QoR-40 score was 189- systemic and 189-epidural group, and 185- intrathecal group. The heart rate and BP changes were comparable in all three groups. There were no patients with excessive sedation/respiratory depression in all three groups. The incidence of PONV and pruritis was more in intrathecal group and least with the epidural group. The time for ambulation, oral fluid intake, hospital stay were comparable in all three groups.

**CONCLUSION:** Intraoperative administration of systemic morphine (0.1 mg/kg) or epidural morphine (3 mg) or intrathecal morphine (150 µg) improves the quality of recovery after the substitutional urethroplasty with buccal mucosal grafting. Neuraxial morphine is comparable with intravenous administration for improving the quality of recovery. All three techniques

have reduced the postoperative pain score and opioid consumption. The incidence of PONV and pruritis was more in intrathecal group and least with the epidural group.

**KEY-WORDS:**Substitutional urethroplasty, neuraxial opioids, systemic morphine, QoR, PONV, pruritis.